

ABSTRACT OF THE DISCLOSURE

In a transistor in which the majority carriers are holes, at least one narrow bandgap region or layer is doped p-type or contains an excess of holes and is subject to compressive mechanical strain, whereby hole mobility may be significantly increased. In a p-channel quantum well FET, the quantum well InSb well p-type layer 5 (modulation or directly doped) lies between $\text{In}_{1-x}\text{Al}_x\text{Sb}$ layers 4, 6 where x is of a value sufficient to induce strain in layer 5 to an extent that light and heavy holes are separated by much more than kT . Transistors falling within the invention, including bipolar pnp devices, may be used with their more conventional electron majority carriers counterparts in complementary logic circuitry.